

Lowered Platelet Count : A Prognostic Index in Pregnancy Induced Hypertension

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OBJECTIVES – To know the variation in platelet count between normal pregnancy and pregnancy induced hypertension (PIH) and to correlate fetomaternal outcome with the platelet count. **METHOD** – Study group included 100 women with PIH and control group included 50 normal pregnant women from antenatal clinics and inpatient ward. Blood samples were taken and platelet counting done by manual method in the third trimester. Counts in normal pregnant women, mild PIH, severe PIH and eclampsia were compared. **RESULTS** – There was a marked thrombocytopenia in severe PIH which also indicated severity of the disease. **CONCLUSION** – Thrombocytopenia is directly proportional to the severity of the disease. Reduction of platelet count below 1 lac per ml increases the risk of DIC and HELLP syndrome significantly, thus giving an early prediction suggesting prompt management.

Key words : pregnancy induced hypertension, platelet count, prognostic factors, consumption coagulopathy

Introduction

Pregnancy induced hypertension (PIH) still remains a nightmare for every obstetrician, we are constantly searching for better prognostic factors to predict the progress and severity of the disease which profoundly affects both mother and fetus. Because of a slow process of consumption coagulopathy in PIH, reduction in platelet count is an early feature of the disease. This study was conducted over a period of 18 months from January 1998 to June 1999, to assess the prognostic value of lowered platelet count in PIH. The aim of the study was to know the variation in platelet count between women having normal pregnancy and PIH, to establish relationship of platelet count with severity of PIH and to correlate prognosis with platelet count in antenatal period.

Material and Methods

The study group included 100 women with pregnancy induced hypertension, according to ACOG classification. The control group included 50 randomly selected women with normal pregnancy from the antenatal clinic and inpatient ward. Besides complete obstetric examination, detailed history was taken, with special attention to hemorrhagic disorders, thromboembolic episode, epilepsy, hepatic or renal disorder and drug intake which can alter

platelet count and function. During the third trimester blood samples were taken every four weeks for estimating Hb%, total and differential white cell counts, blood sugar, blood urea, serum uric acid and total platelet count. Platelet counting was done manually.

Results

The study group of 100 women with PIH was distributed into mild and severe pre-eclampsia and eclampsia (Table I).

For comparing the platelet count and to determine its increasing or decreasing trend, the mean value for each group was determined. There was a significant difference between platelet counts of severe PIH ($p=0.001$), eclampsia ($p=0.001$) and mild PIH ($p = 0.044$) when compared to control group (Table I).

To specify the relationship, a comparison was made between number of cases in control and study group with normal, low and very low counts (Table II). Minimum counts are seen in patients with severe PIH and eclampsia.

Of the study group six patients died, four of eclampsia and two of severe pre-eclampsia. Of the eclampsia patients, two died of cerebrovascular accident as they were referred late, one of renal failure and one of DIC, while of severe pre-eclampsia patients, both died of acute renal failure.

Paper received on 20/06/02 ; accepted on 19/02/04

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Table I: Platelet counts

| Group | No. of patients | Mean Platelet count (lacs/ml) | 'p' value ^a compared with control group |
|---------------|-----------------|-------------------------------|--|
| Mild PIH | 40 | 2.0 | 0.044 |
| Severe PIH | 32 | 1.4 | 0.001 |
| Eclampsia | 28 | 1.3 | 0.001 |
| Control Group | 50 | 2.2 | — |

^achi square test

Table II: Comparison of the platelet count between the control and study group

| Platelet count (lacs/cc) | No. of Cases | | | |
|--------------------------|----------------|-----------------|-------------------|------------------|
| | Control (n=50) | Mild PIH (n=40) | Severe PIH (n=32) | Eclampsia (n=28) |
| Normal (> 1.5) | 38 (76) | 30 (75) | 12 (37.5) | 6 (21.4) |
| Low (1.0-1.5) | 12 (24) | 8 (20) | 13 (40.62) | 11 (39.3) |
| Very low (<1.0) | — | 2 (5) | 7 (21.8) | 11 (39.3) |

Figures in brackets denote percentage.

Table III: Comparison of mean platelet count in lacs/ml in different series

| Group | Present Series | Kulkarni and Sutaria ¹ (1983) | Agarwal and Buradkar ² (1978) | Giles and Inglis ³ (1981) | Dube et al ⁴ (1975) |
|-----------|----------------|--|--|--------------------------------------|--------------------------------|
| Normal | 2.2 | 2.5 | 2.4 | 2.8 | 2.3 |
| Mild PIH | 2.0 | 1.84 | 2.1 | 2.4 | 1.9 |
| Sever PIH | 1.4 | 1.19 | 2.1 | 2.1 | 1.9 |
| Eclampsia | 1.3 | 1.18 | 1.6 | 1.5 | 1.8 |

Discussion

Reduced platelet counts in patients of mild and severe PIH and very low counts in eclampsia were comparable to those reported by other authors (Table – III). All these studies confirm a marked thrombocytopenia in patients with severe PIH, which indicates severity of the disease.

We found 21.8% of severe PIH patients and 39.3% of eclampsia patients with a platelet count below one lac per cc, which is comparable to the study of Sibai et al⁵ and of Pritchard⁶ who have reported platelet count less than one lac per cc in 30% patients of eclampsia. However, Redman⁷ noticed that if patients are followed serially with each woman acting as her own control, a relative reduction in the platelet count may be commonly seen many weeks prior to the onset of clinical disease suggesting platelet consumption occurring in the early part of the disorder.

Thrombocytopenia is directly proportional to the severity of PIH. Counts below 1 lac per ml indicate increased risk of DIC and HELLP syndrome.

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